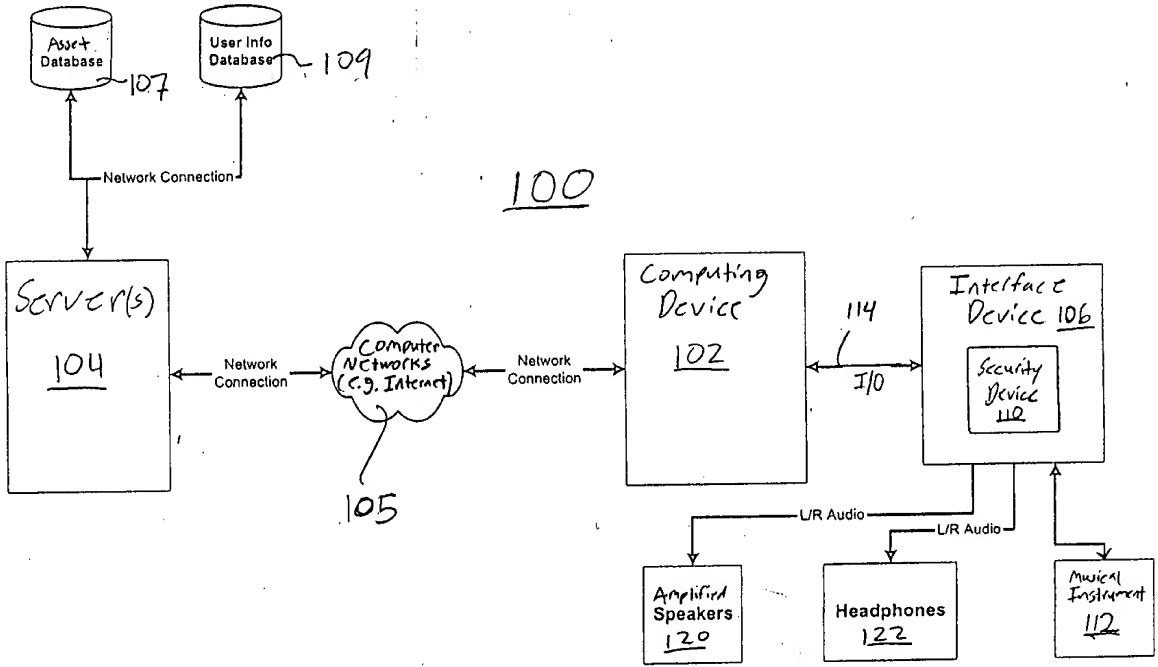
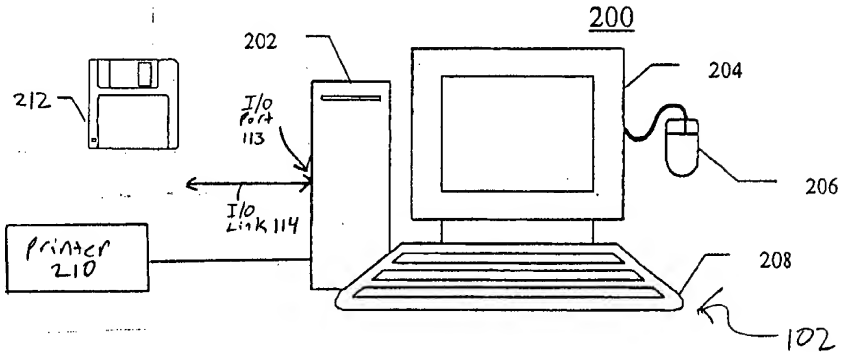

Asset Database
107
User Info Database
109
Network Connection
100
Server(s)
104
Network Connection
Computer Networks (e.g. Internet)
105
Network Connection
Computing Device
102
114
I/O
Interface Device 106
Security Device 110
L/R Audio
L/R Audio
Amplified Speakers 120
Headphones 122
Musical Instrument 112

Figure 1

Figure 2a



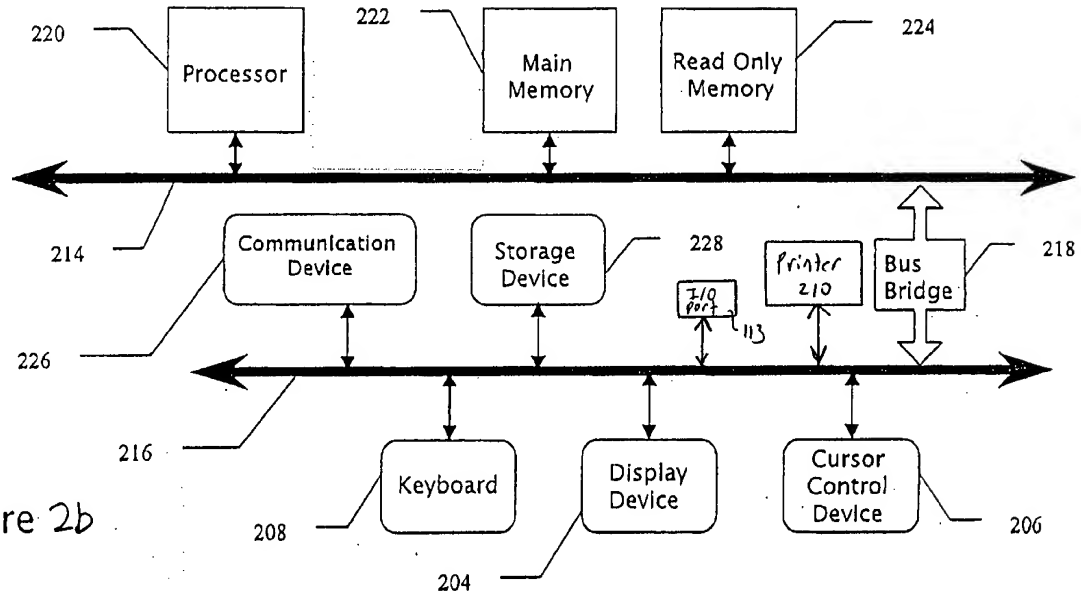
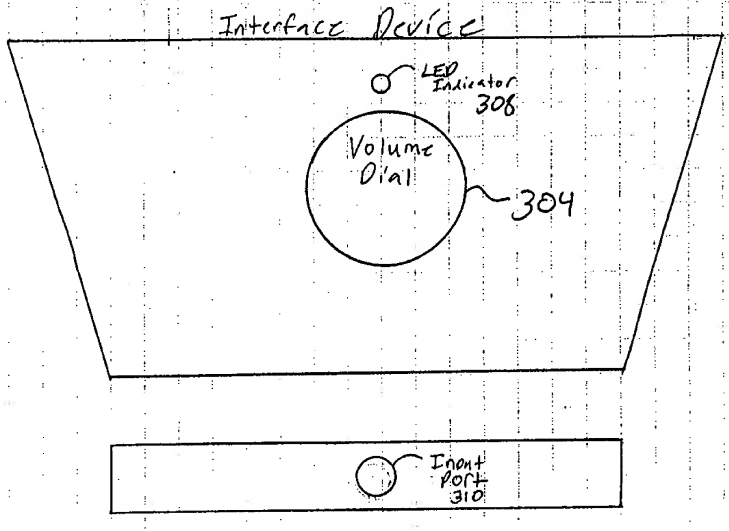


Figure 2b



Top View

Figure 3a

Front View

Figure 3b

Back View

Figure 3c

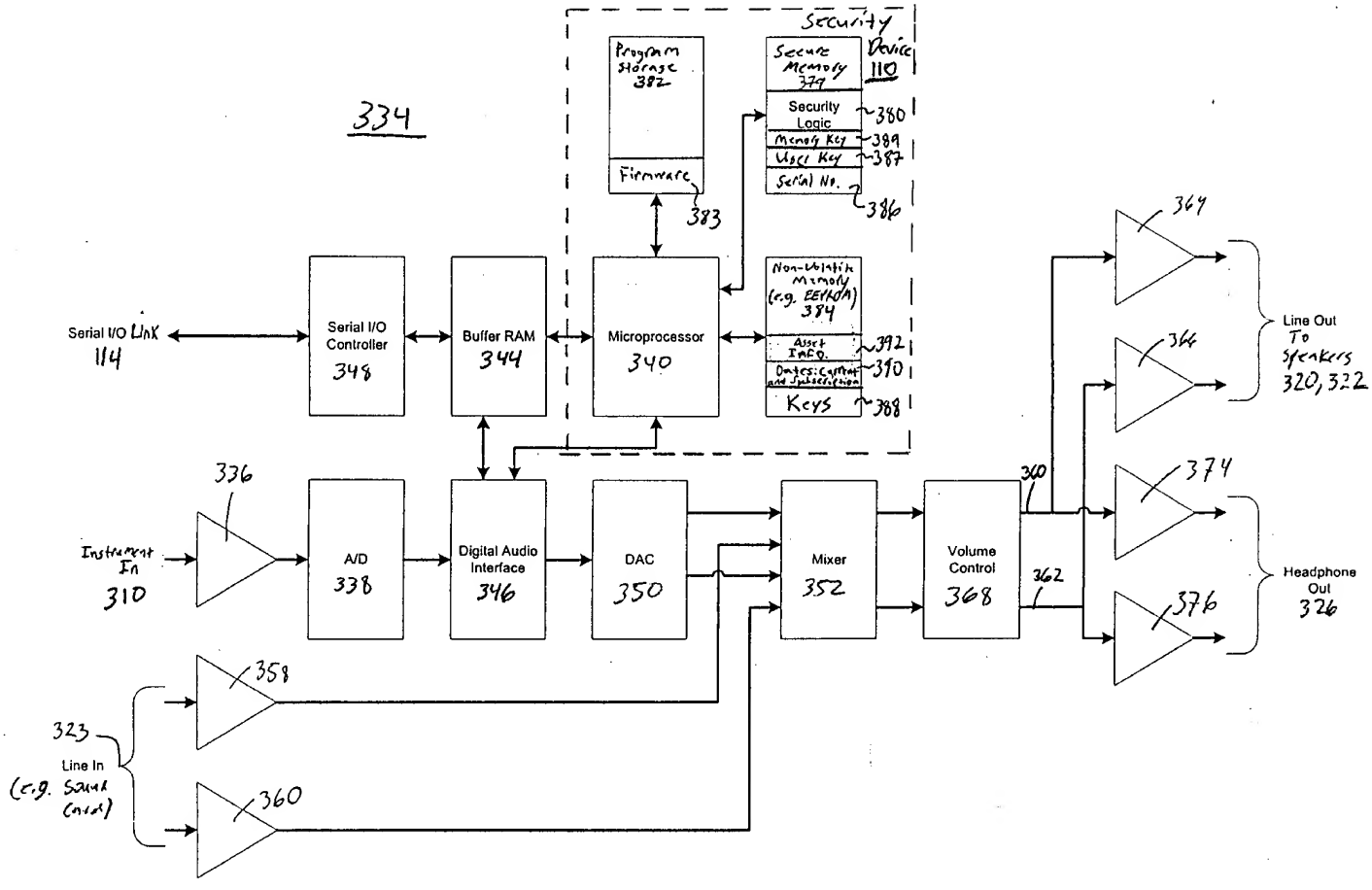

334
Security Device 110
Program Storage 382
Firmware 383
Secure Memory 379
Security Logic 380
Memory Key 389
Unit Key 387
Serial No. 386
Non-Volatile Memory (e.g. EEPROM) 384
Asset Info. 392
Keys 388
Serial I/O Link 114
Serial I/O Controller 348
Buffer RAM 344
Microprocessor 340
Instrument In 310
336
A/D 338
Digital Audio Interface 346
DAC 350
Mixer 352
Volume Control 368
360
362
364
366
374
376
Line Out To Speakers 320, 322
Headphone Out 326
323
Line In (e.g. Sound Card)
358
360

Figure 3d

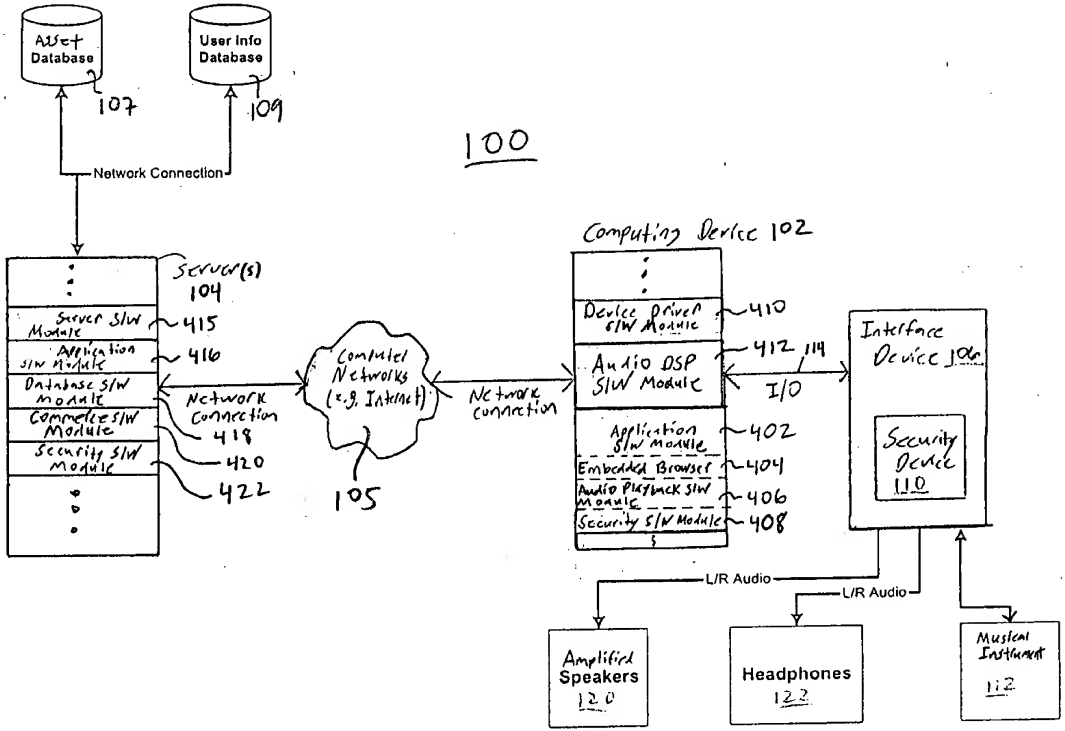

Asset Database
107
User Info Database
109
Network Connection
100
Computing Device 102
Server(s) 104
Server SW Module
415
Application SW Module
416
Database SW Module
Connector SW Module
Security SW Module
Network Connection
418
420
422
Computer Networks (e.g. Internet)
105
Network connection
Device Driver SW Module
410
Audio DSP SW Module
412
114
I/O
Application SW Module
402
Embedded Browser
404
Audio Playback SW Module
406
Security SW Module
408
Interface Device 106
Security Device 110
L/R Audio
L/R Audio
Amplified Speakers 120
Headphones 122
Musical Instrument 112

Figure 4

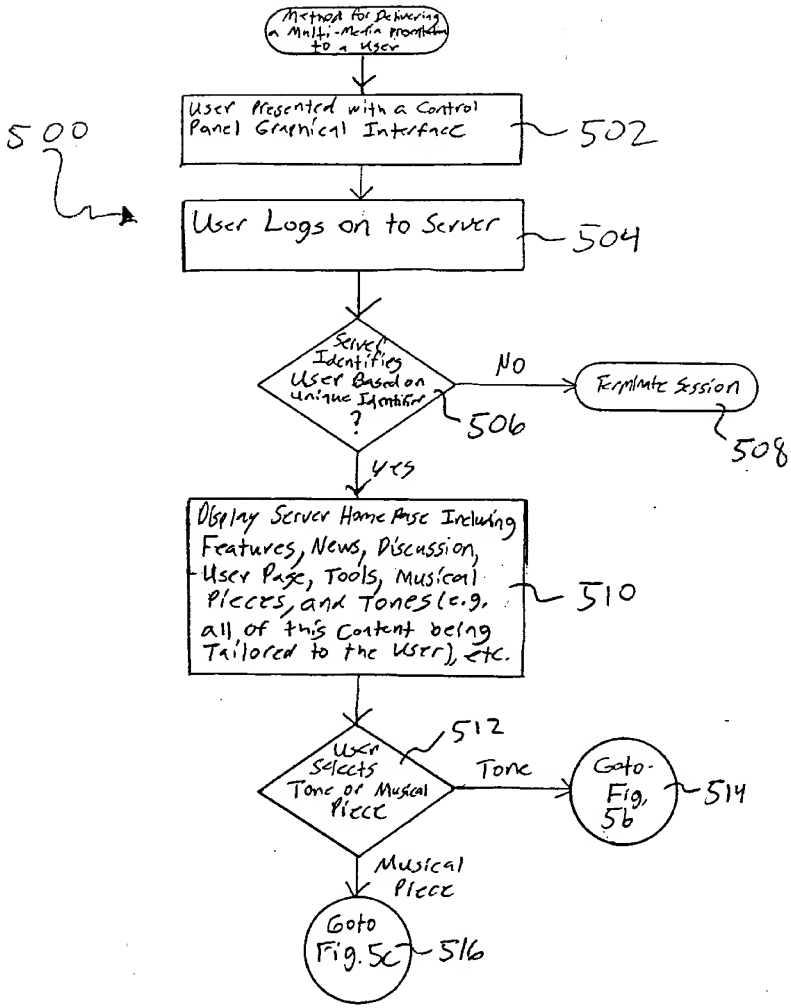

Method for Delivering a Multi-Media presentation to a User
500
User Presented with a Control Panel Graphical Interface
502
User Logs on to Server
504
Server Identifies User Based on unique Identifier ?
506
No
Terminate Session
508
Yes
Display Server Home Page Including Features, News, Discussion, User Page, Tools, Musical Pieces, and Tones (e.g. all of this Content being Tailored to the User), etc.
510
User Selects Tone or Musical Piece
512
Tone
Goto Fig. 5b
514
Musical Piece
Goto Fig. 5c
516

Figure 5a

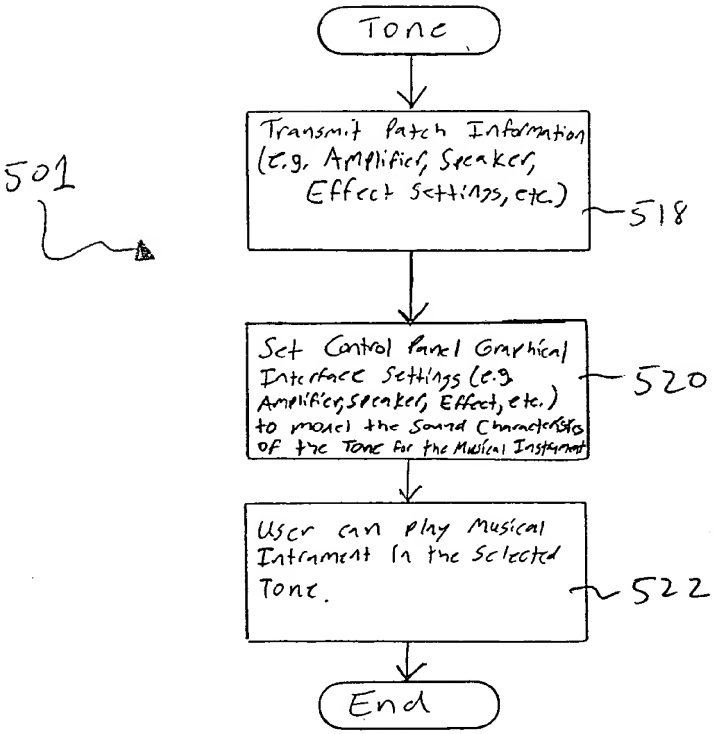

Tone
Transmit Patch Information (e.g. Amplifier, Speaker, Effect Settings, etc.)
518
501
Set Control Panel Graphical Interface Settings (e.g. Amplifier, Speaker, Effect, etc.) to model the Sound Characteristics of the Tone for the Musical Instrument
520
User can play Musical Intrament in the Selected Tone.
522
End

Figure 5b

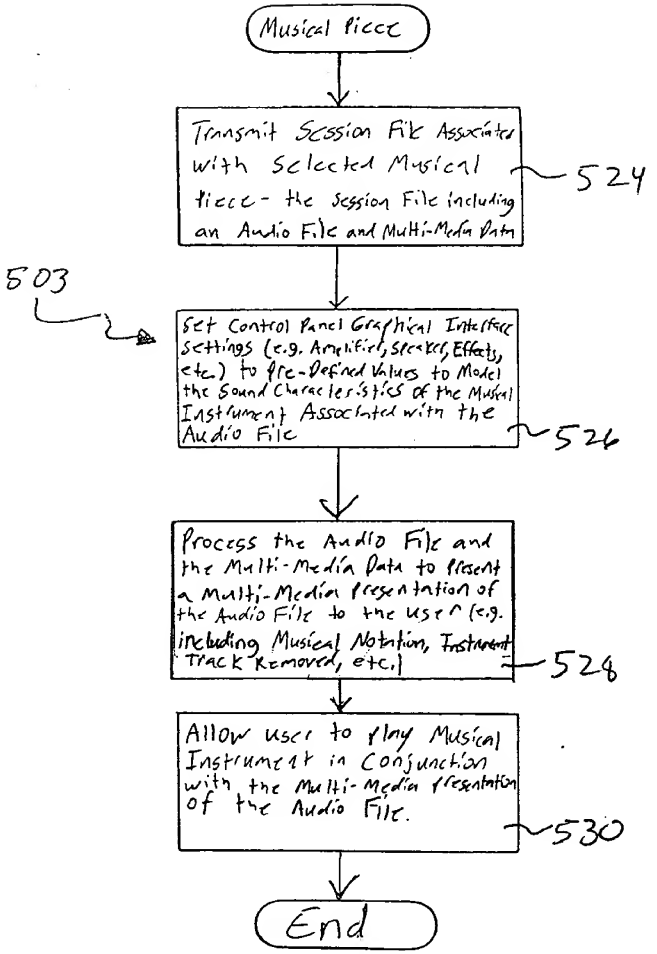

Musical Piece
Transmit Session File Associated with Selected Musical Piece - the Session File including an Audio File and Multi-Media Data
524
503
Set Control Panel Graphical Interface settings (e.g. Amplifier, Speaker, Effects, etc.) to Pre-Defined Values to Model the Sound Characteristics of the Musical Instrument Associated with the Audio File
526
Process the Audio File and the Multi-Media Data to Present a Multi-Media Presentation of the Audio File to the User (e.g. including Musical Notation, Instrument Track Removed, etc.)
528
Allow user to play Musical Instrument in Conjunction with the Multi-Media Presentation of the Audio File.
530
End

Figure 5C

EQTZTT'E0806660

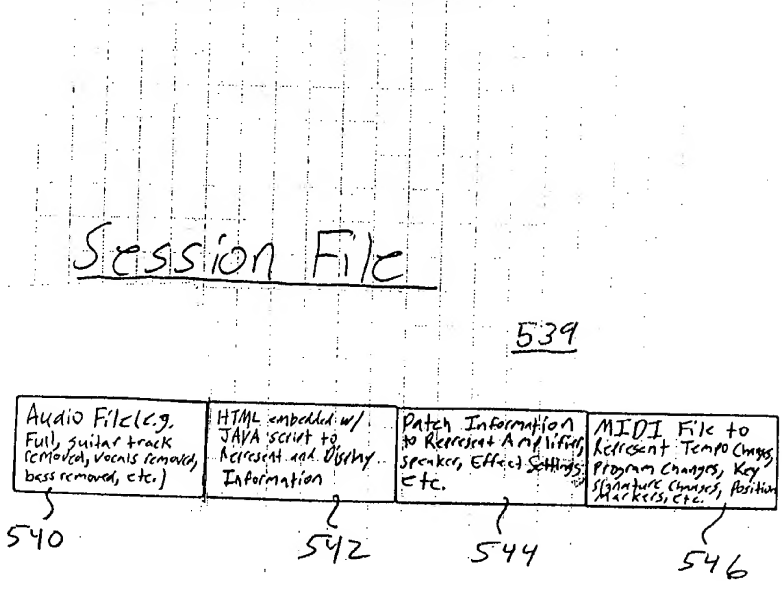


Figure 5d

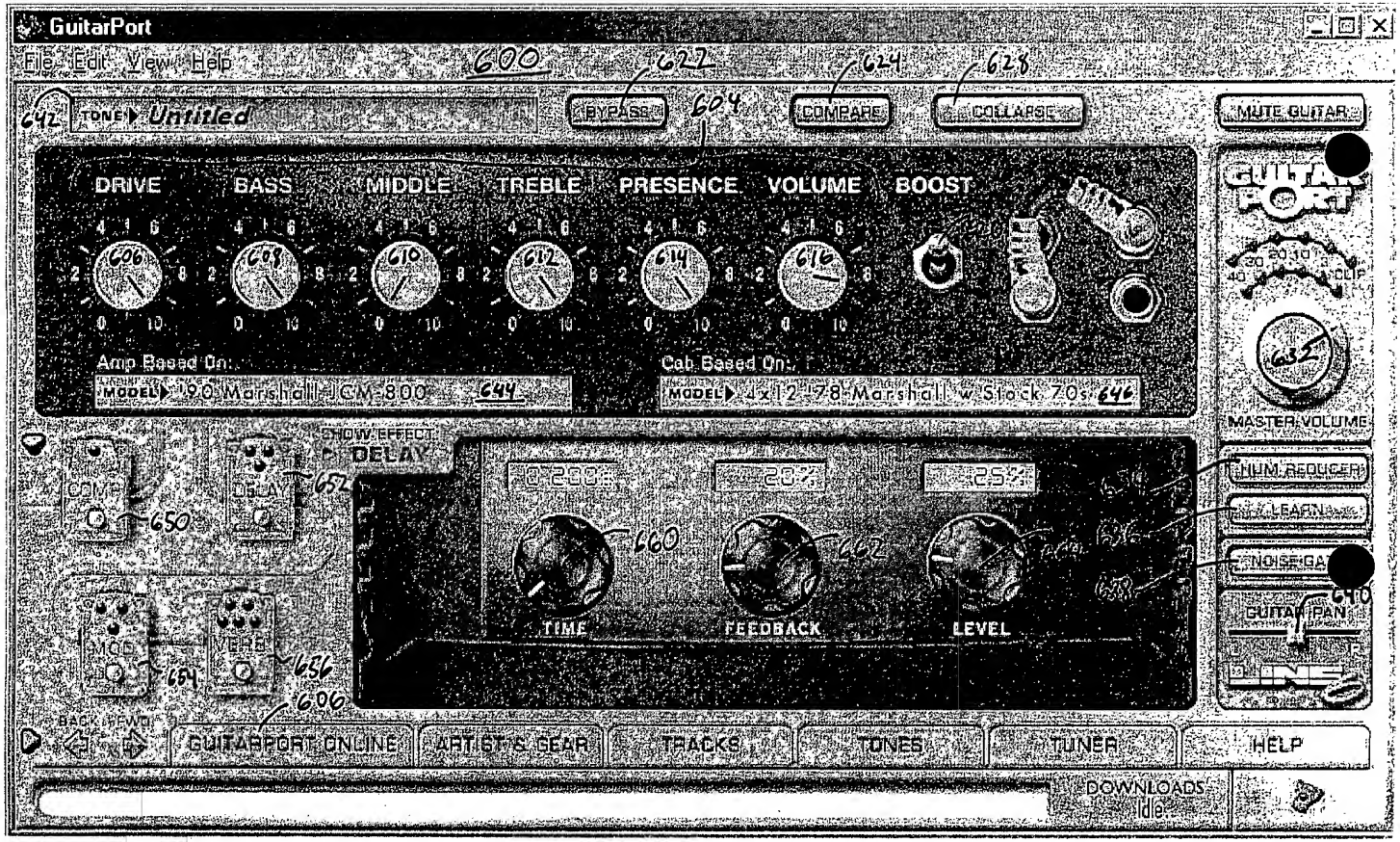

GuitarPort
File Edit View Help
600
627
624
628
642
TONE Untitled
BYPASS
604
COMPARE
COLLAPSE
MUTE GUITAR
DRIVE
BASS
MIDDLE
TREBLE
PRESENCE
VOLUME
BOOST
606
609
610
612
614
616
Amp Based On:
MODEL 90 Marshall JCM 800
644
Cab Based On:
MODEL 4x12 78 Marshall w Stock 70s
646
GUITAR PORT
CLIP
632
MASTER VOLUME
NUM REDUCER
LEARN
NOISE GA
GUITAR PAN
650
652
654
656
SHOW EFFECT
DELAY
25%
25%
660
662
TIME
FEEDBACK
LEVEL
606
BACK
FWD
GUITARPORT ONLINE
ARTIST & GEAR
TRACKS
TONES
TUNER
HELP
DOWNLOADS
Idle

Figure 6a

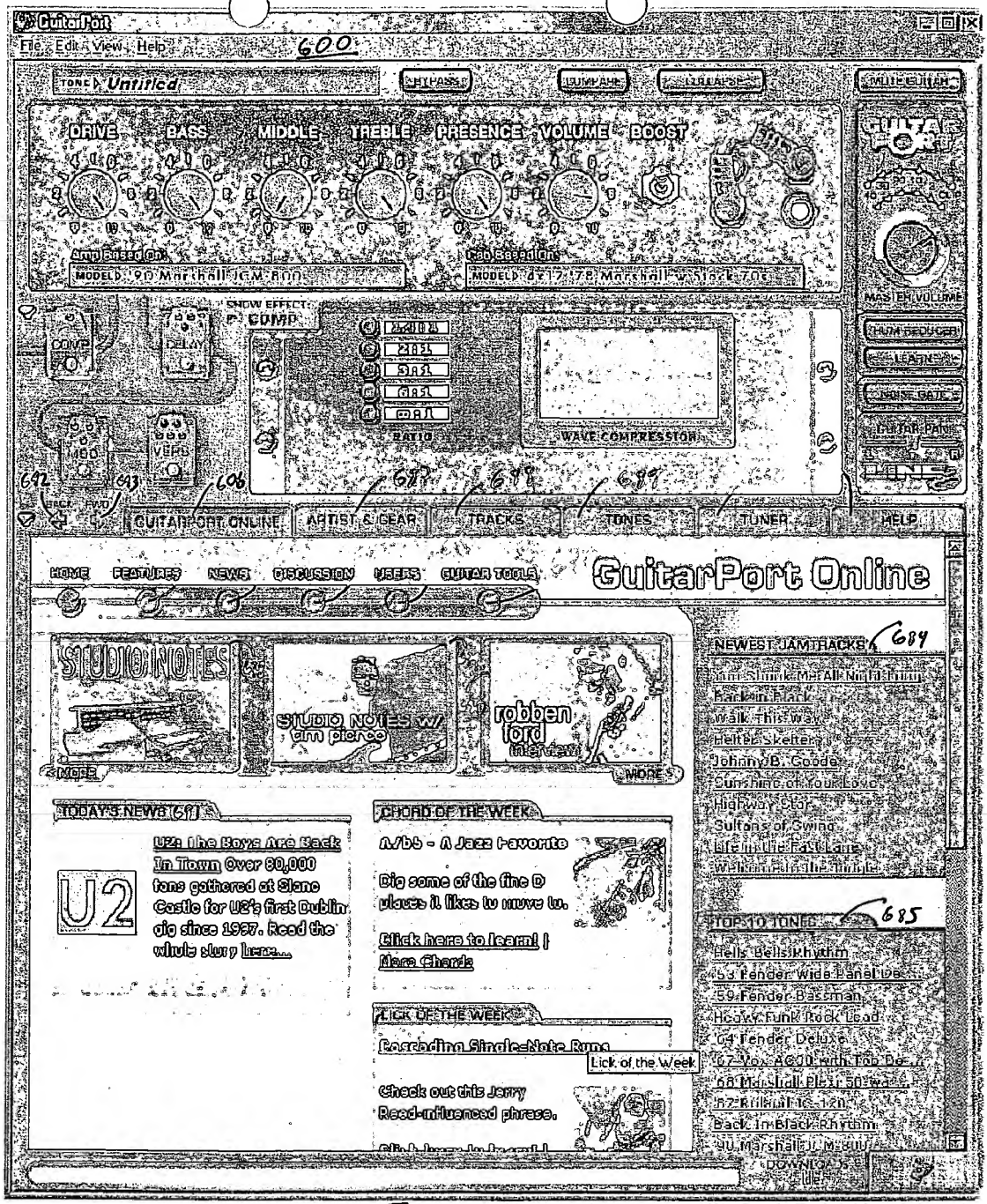

GuitarPort
File Edit View Help
600
TONES Untitled
BYPASS
TUMPAHL
TUNER
MULTI GUITAR
DRIVE BASS MIDDLE TREBLE PRESENCE VOLUME BOOST
MODEL 90 Marshall JCM 800
MODEL 4x12 78 Marshall w/Slash 70s
MASTER VOLUME
THUMP REDUCER
LEARN AI
NOISE GATE
GUITAR PAN
SNOW EFFECT
COMP
DELAY
RATIO
WAVE COMPRESSION
692
693
606
697
698
699
GUITARPORT ONLINE
ARTIST & GEAR
TRACKS
TONES
TUNER
HELP
HOME FEATURES NEWS DISCUSSION USERS GUITAR TOOLS
GuitarPort Online
STUDIO NOTES
STUDIO NOTES w/ Jim Pierce
robben ford interview
MORE
MORE
NEWEST JAM TRACKS
689
Aint Misbehavin
Aint Misbehavin
Hardwin Black
Walk This Way
Helter Skelter
Johnny B. Goode
Sunshine of Your Love
Highway Star
Sultans of Swing
Life in the Fast Lane
Walkin' Into the Jungle
TOP 10 TONES
685
Hells Bells Rhythm
'53 Fender Wide Panel De...
'59 Fender Bassman
Heavy Funk Rock Lead
'64 Fender Deluxe
'67 Vox AC30 with Top Bo...
'68 Marshall Plexi 50 wat...
'72 Brilliant 15 120
Back In Black Rhythm
'90 Marshall JCM 800
TODAY'S NEWS [691]
U2: The Boys Are Back In Town Over 80,000 fans gathered at Slane Castle for U2's first Dublin gig since 1987. Read the whole story here....
CHORD OF THE WEEK
A/b5 - A Jazz Favorite
Dig some of the fine D places it likes to move to.
Click here to learn! | More Chords
LICK OF THE WEEK
Lick of the Week
Check out this Jerry Read-influenced phrase.
DOWNLOADS

Figure 6b

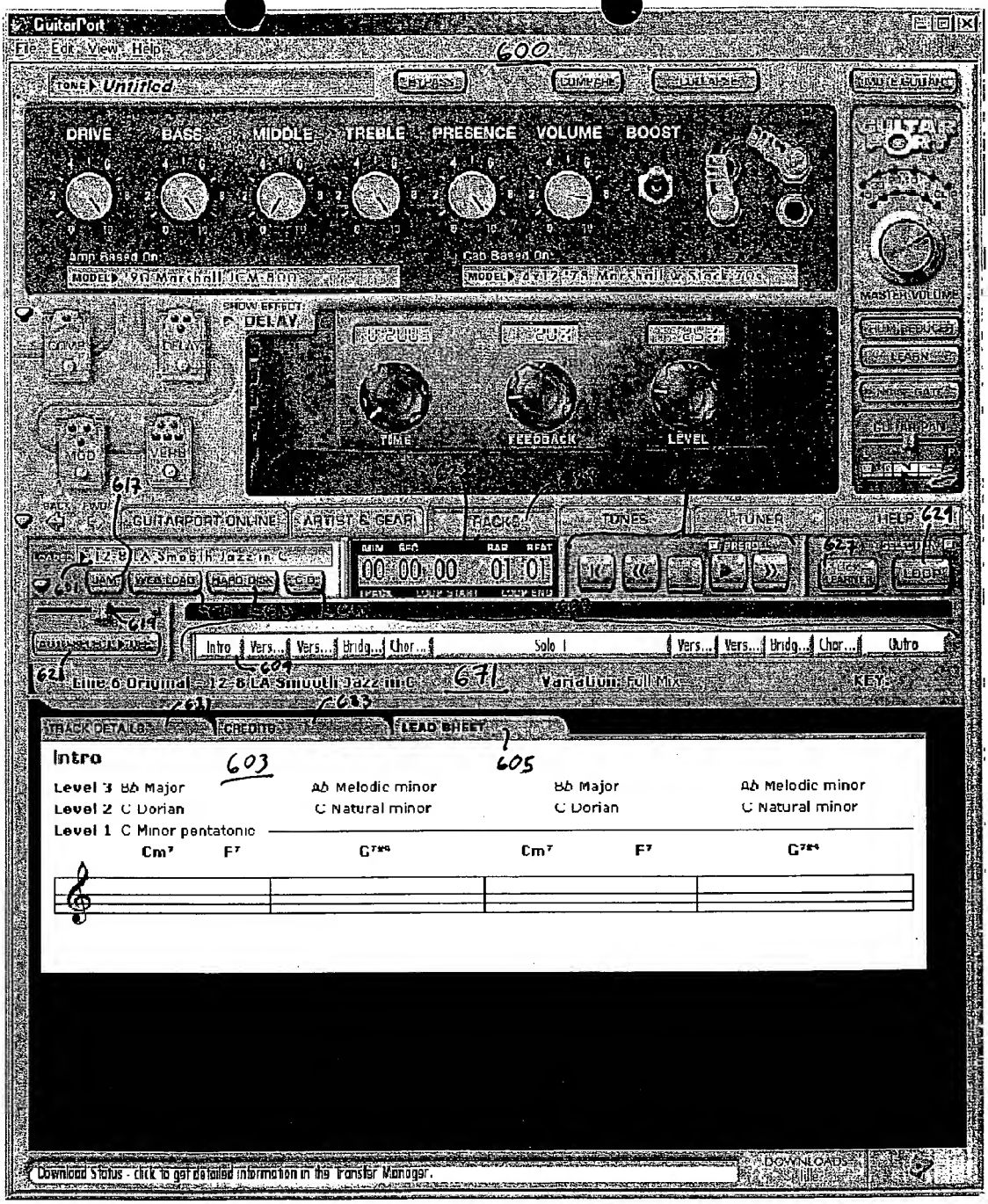


Figure 6C

PATENT 2006660

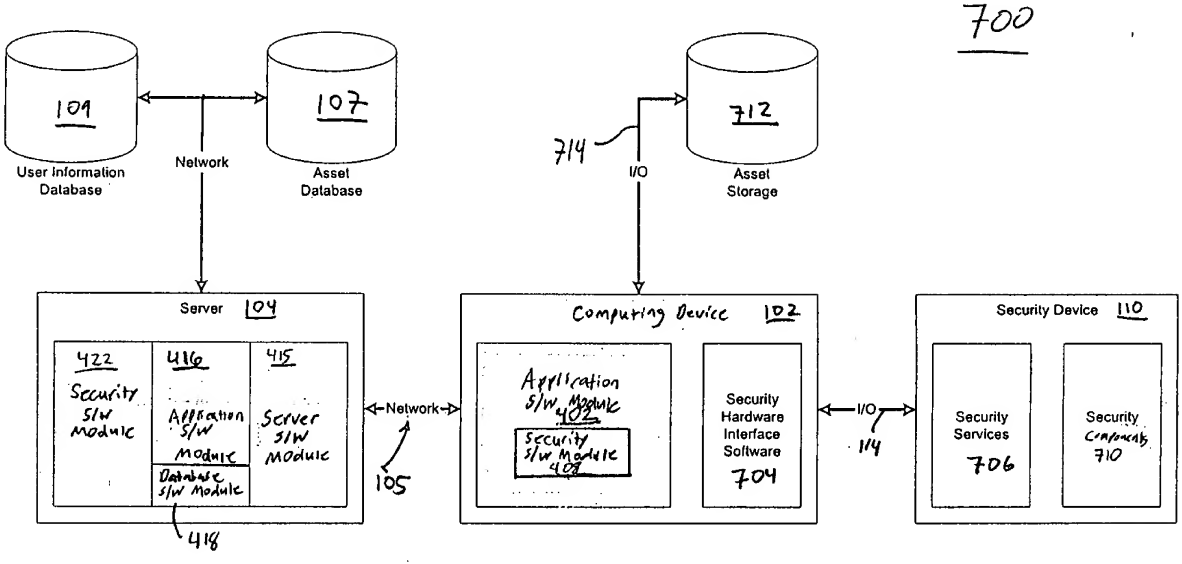

700
109
User Information Database
Network
107
Asset Database
714
I/O
712
Asset Storage
Server 104
422
Security S/W Module
416
Application S/W Module
Database S/W Module
418
415
Server S/W Module
Network
105
Computing Device 102
Application S/W Module 402
Security S/W Module 407
Security Hardware Interface Software 704
I/O
114
Security Device 110
Security Services 706
Security Components 710

Figure 7a

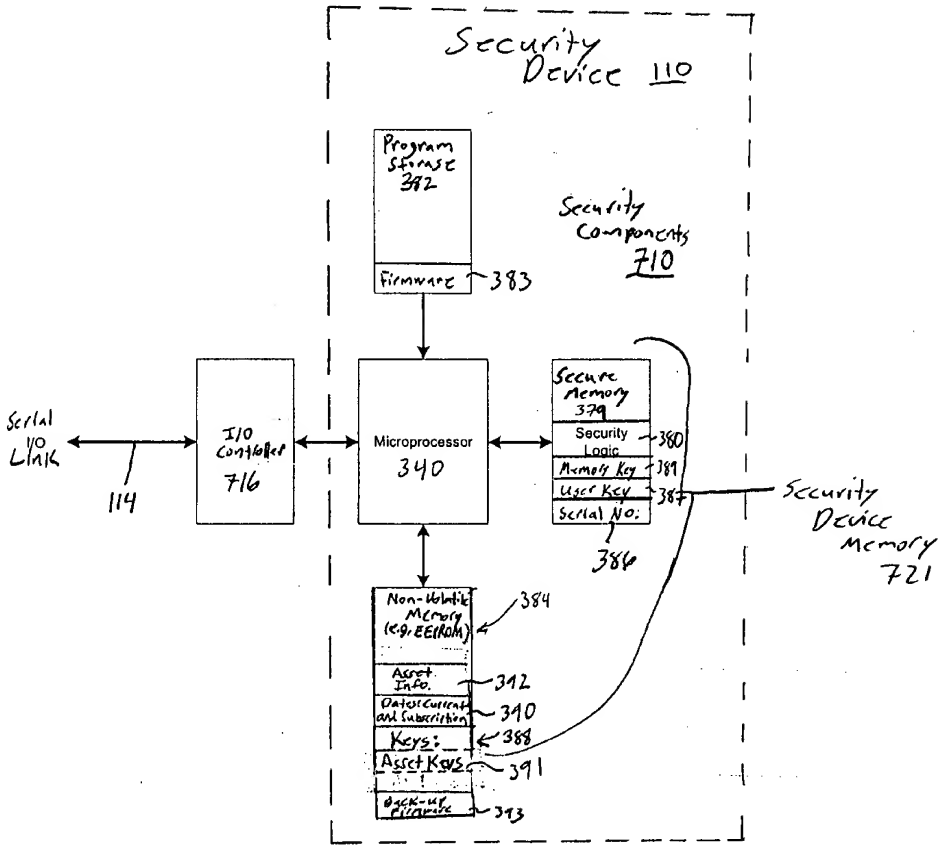

Security Device 110
Program Storage 382
Firmware 383
Security Components 710
Serial I/O Link
114
I/O Controller 716
Microprocessor 340
Secure Memory 379
Security Logic 380
Memory Key 389
User Key 387
Serial No. 386
Security Device Memory 721
Non-Volatile Memory (e.g. EEPROM) 384
Asset Info. 312
Data Set Current and Subscription 310
Keys: 388
Asset Keys 391
Back-up Firmware 393

Figure 7b

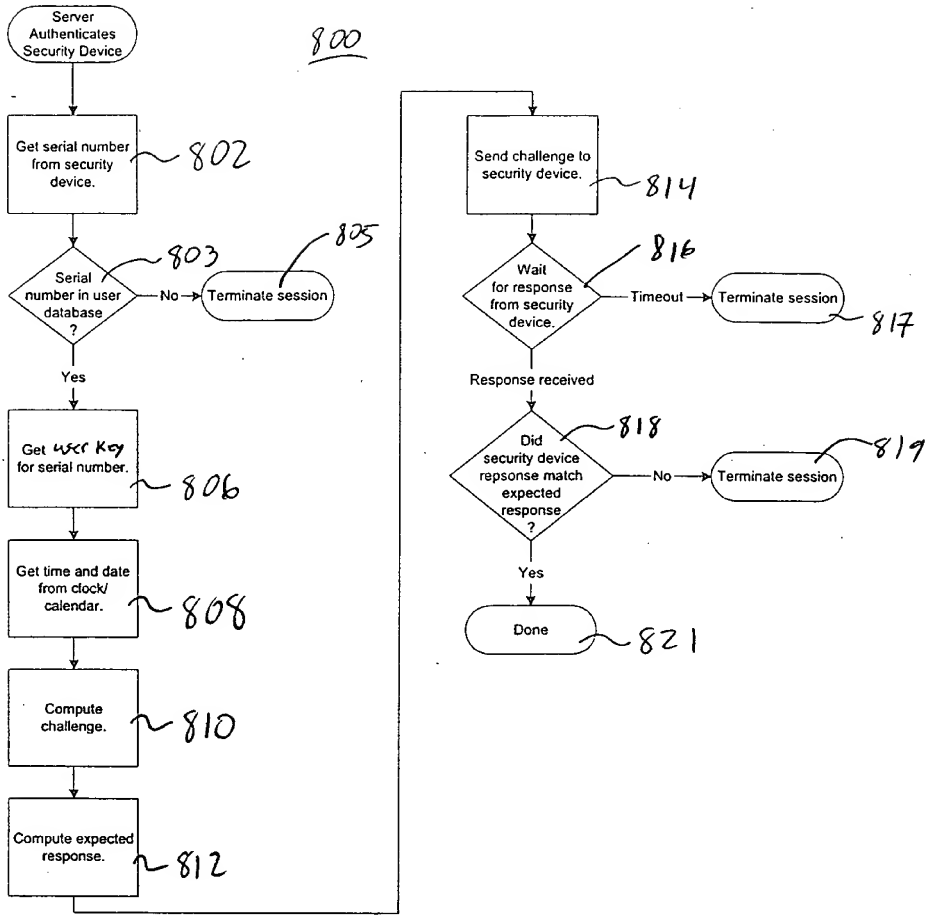

Server Authenticates Security Device
800
Get serial number from security device.
802
Serial number in user database ?
803
No
Terminate session
805
Yes
Get user Key for serial number.
806
Get time and date from clock/ calendar.
808
Compute challenge.
810
Compute expected response.
812
Send challenge to security device.
814
Wait for response from security device.
816
Timeout
Terminate session
817
Response received
Did security device repsonse match expected response ?
818
No
Terminate session
819
Yes
Done
821

Figure 8a

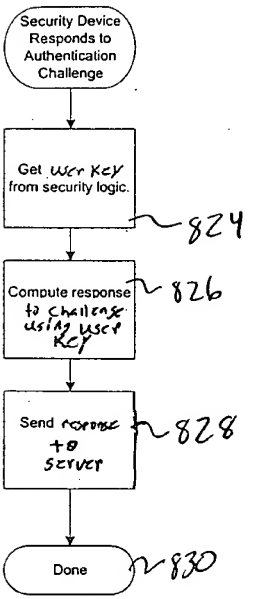

Security Device Responds to Authentication Challenge
822
Get User Key from security logic.
824
Compute response to challenge using User Key
826
Send response to server
828
Done
830

Figure 8b

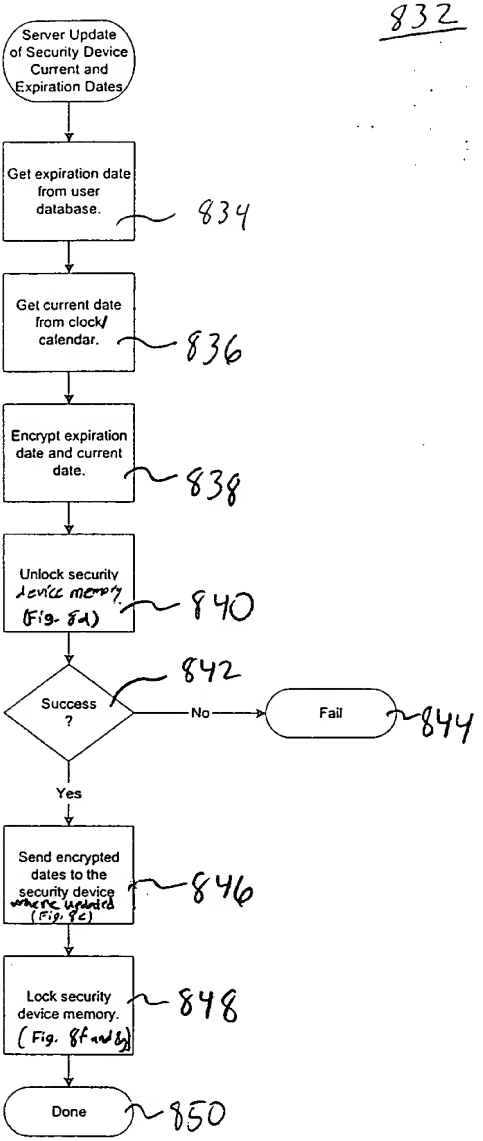

832
Server Update of Security Device Current and Expiration Dates
Get expiration date from user database.
834
Get current date from clock/ calendar.
836
Encrypt expiration date and current date.
838
Unlock security device memory. (Fig. 8d)
840
842
Success ?
No
Fail
844
Yes
Send encrypted dates to the security device where updated (Fig. 8e)
846
Lock security device memory. (Fig. 8f and 8g)
848
Done
850

Figure 8c

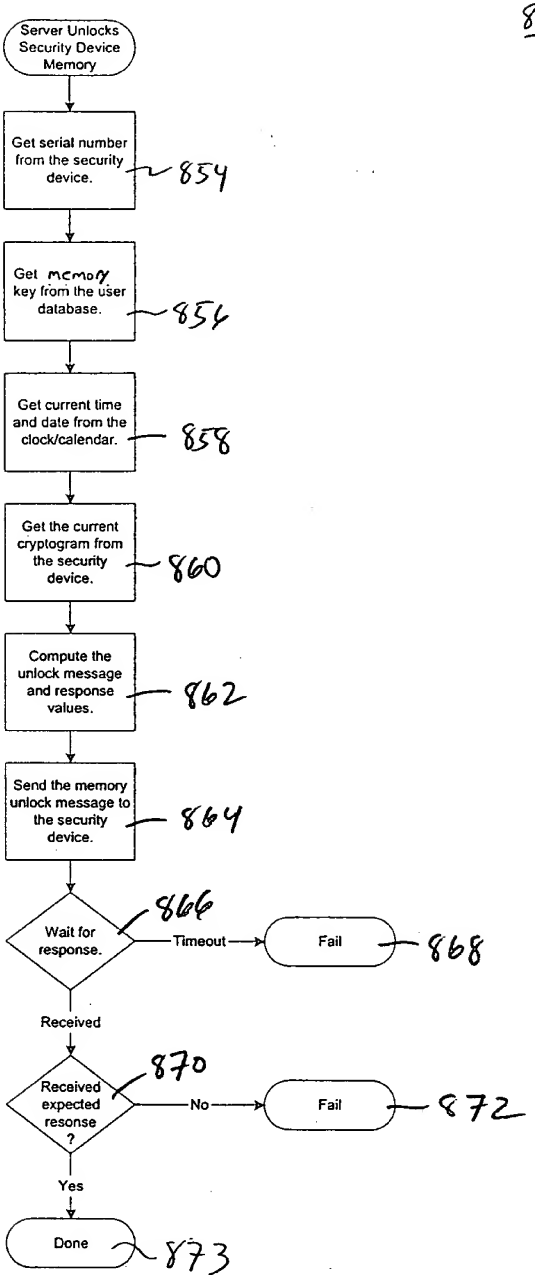

852
Server Unlocks Security Device Memory
Get serial number from the security device.
854
Get memory key from the user database.
856
Get current time and date from the clock/calendar.
858
Get the current cryptogram from the security device.
860
Compute the unlock message and response values.
862
Send the memory unlock message to the security device.
864
Wait for response.
866
Timeout
Fail
868
Received
Received expected resonse ?
870
No
Fail
872
Yes
Done
873

Figure 8d

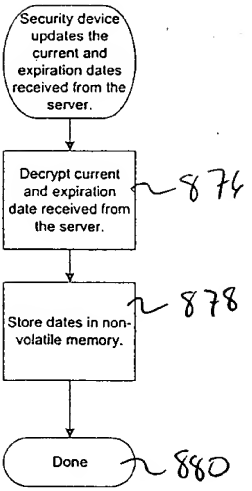

Security device updates the current and expiration dates received from the server.
Decrypt current and expiration date received from the server.
874
Store dates in non-volatile memory.
878
Done
880

Figure 8c

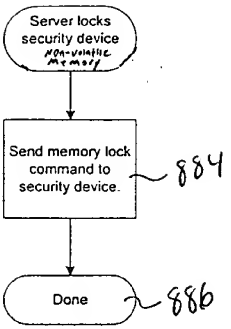

882
Server locks security device non-volatile memory
Send memory lock command to security device.
884
Done
886

Figure 8f

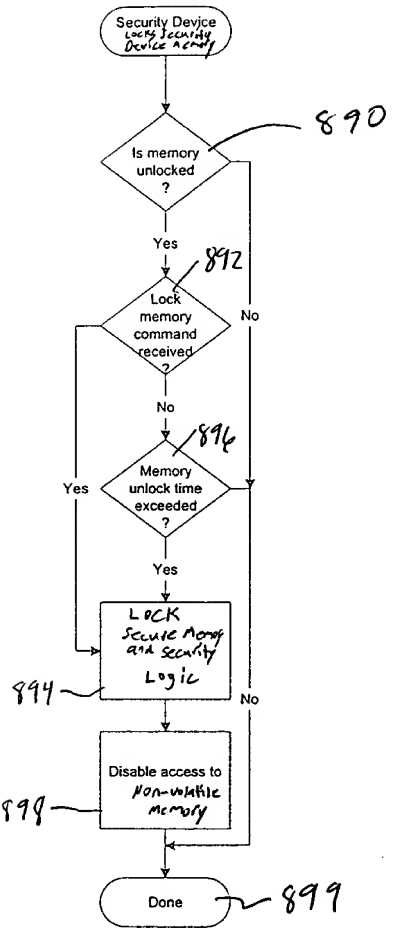

Security Device Locks Security Device Memory
890
Is memory unlocked ?
Yes
892
Lock memory command received ?
No
No
896
Memory unlock time exceeded ?
Yes
Yes
LOCK Secure Memory and Security Logic
894
No
Disable access to Non-volatile memory
898
Done
899

Figure 8s

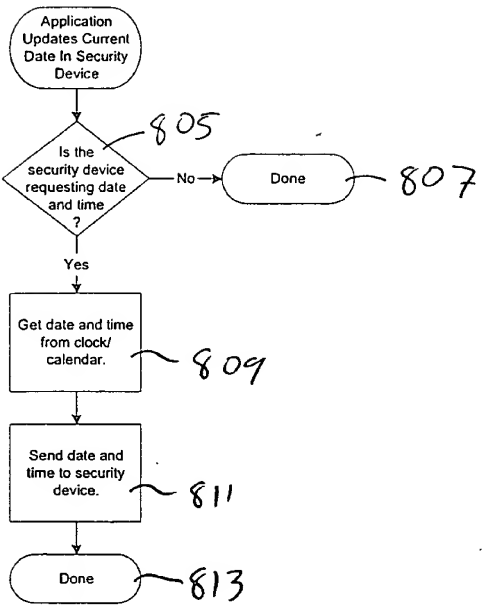

801
Application Updates Current Date In Security Device
805
Is the security device requesting date and time ?
No
Done
807
Yes
Get date and time from clock/ calendar.
809
Send date and time to security device.
811
Done
813

Figure 8h

PATENT 20020159.0

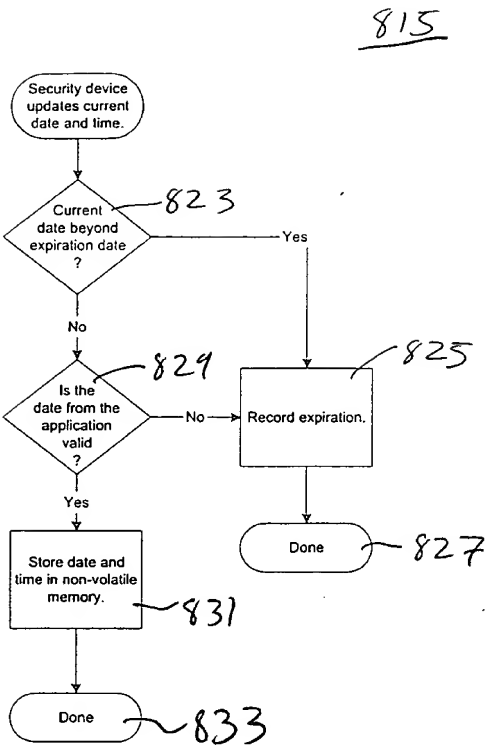


Figure 8i

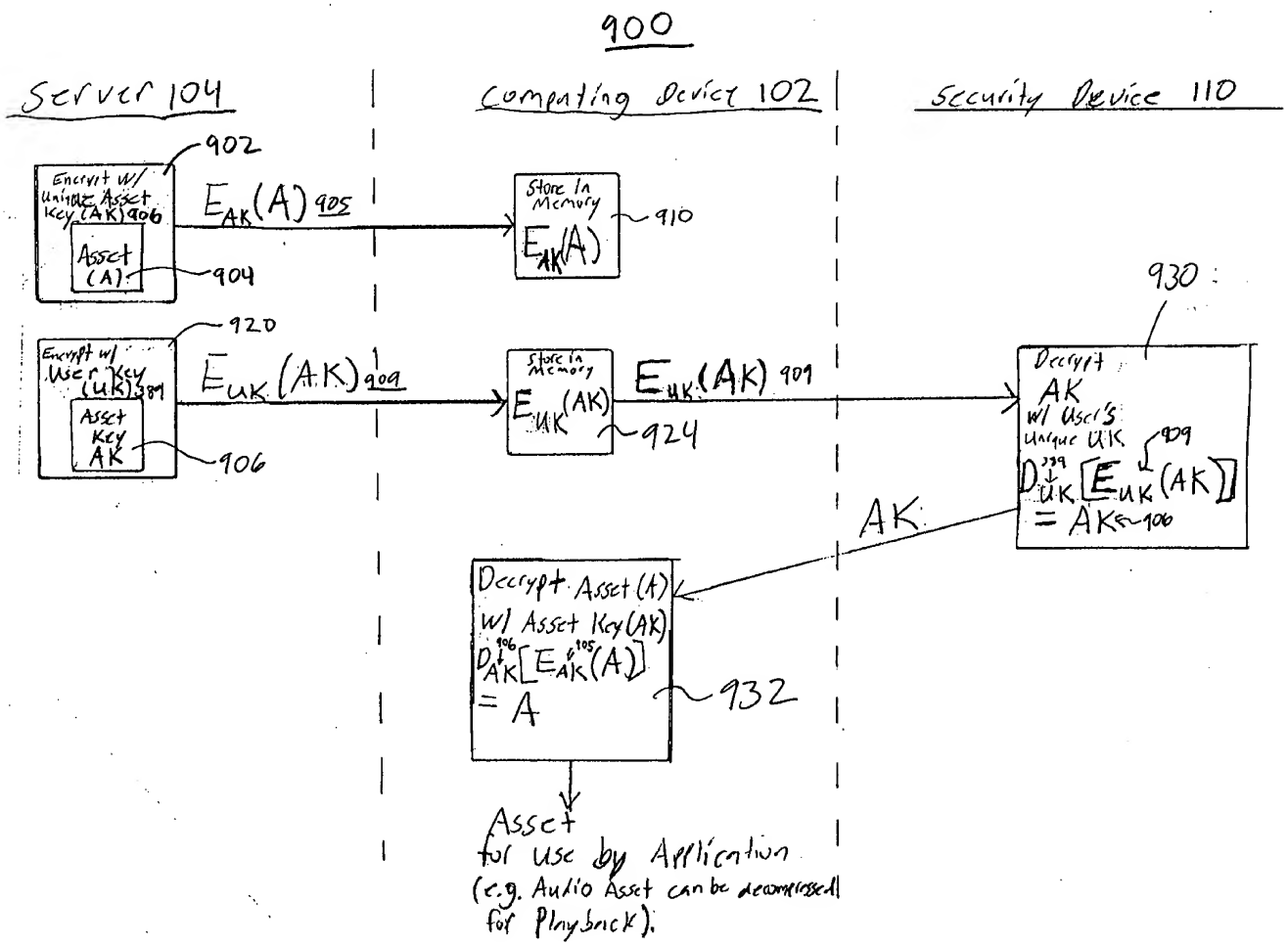

900
Server 104
Computing Device 102
Security Device 110
902
Encrypt w/ Unique Asset Key (AK) 906
Asset (A) 904
$E_{AK}(A)$ 905
Store in Memory
$E_{AK}(A)$ 910
920
Encrypt w/ User Key (UK) 384
Asset Key AK 906
$E_{UK}(AK)$ 909
Store in Memory
$E_{UK}(AK)$ 924
$E_{UK}(AK)$ 901
930
Decrypt AK w/ User's Unique UK
$D_{UK}^{939}[E_{UK}^{909}(AK)]$
= AK 906
AK
Decrypt Asset (A) w/ Asset Key (AK)
$D_{AK}^{906}[E_{AK}^{905}(A)]$
= A
932
Asset for use by Application (e.g. Audio Asset can be decompressed for Playback).

Figure 9

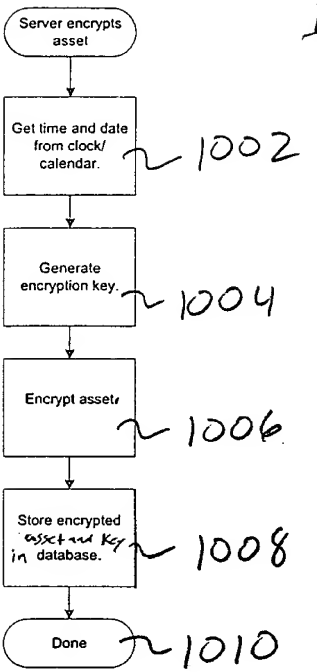

1000
Server encrypts asset
Get time and date from clock/ calendar.
1002
Generate encryption key.
1004
Encrypt asset.
1006
Store encrypted asset and key in database.
1008
Done
1010

Figure 10a

Patent Application

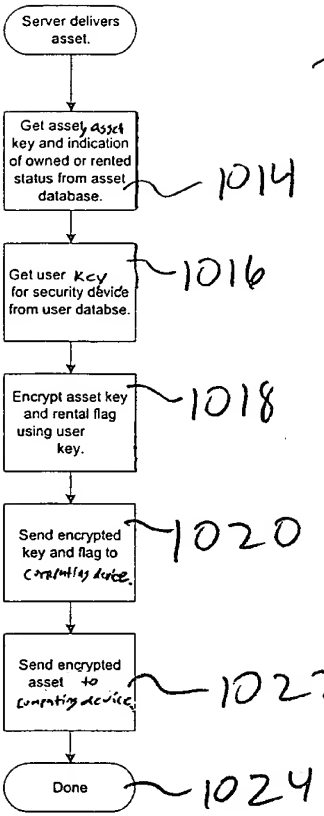


Figure 10b

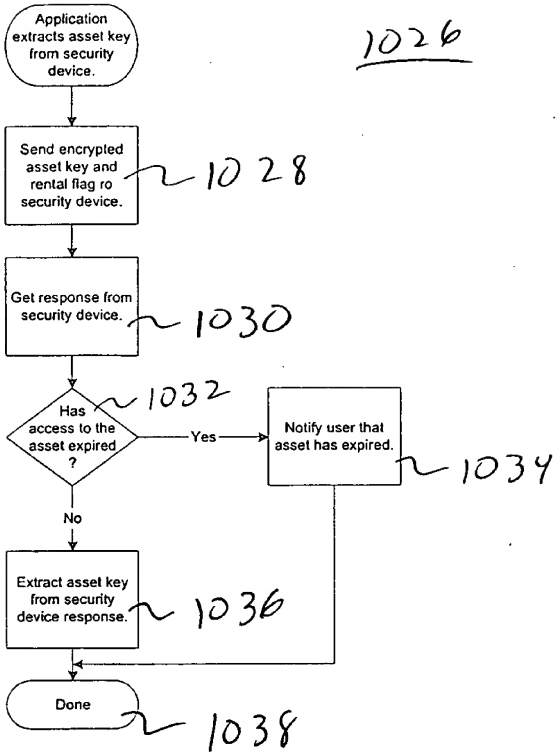

Application extracts asset key from security device.
1026
Send encrypted asset key and rental flag ro security device.
1028
Get response from security device.
1030
Has access to the asset expired ?
1032
Yes
Notify user that asset has expired.
1034
No
Extract asset key from security device response.
1036
Done
1038

Figure 10c

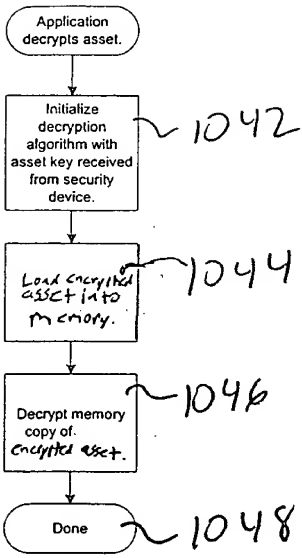

1040
Application decrypts asset.
Initialize decryption algorithm with asset key received from security device.
1042
Load encrypted asset into memory.
1044
Decrypt memory copy of encrypted asset.
1046
Done
1048

Figure 10d

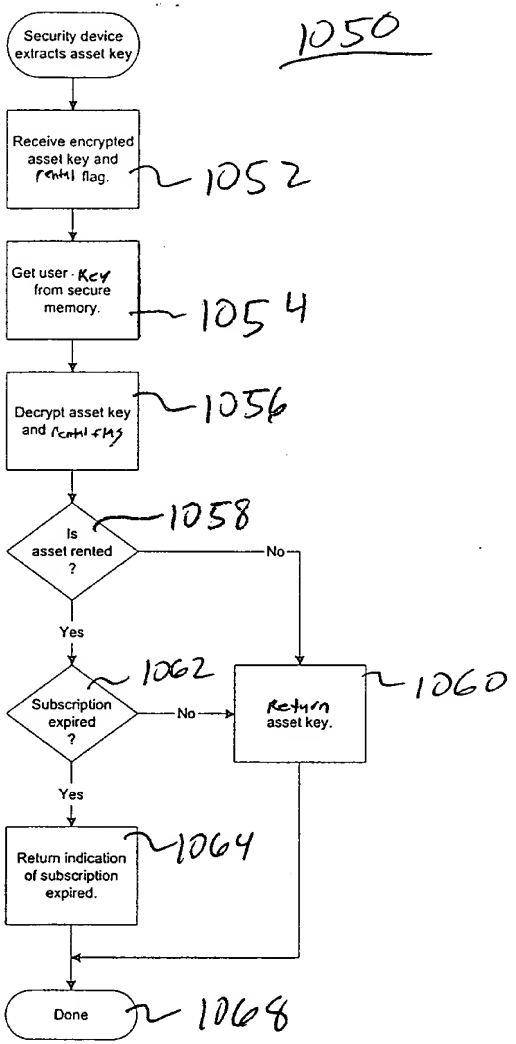

1050
Security device extracts asset key
Receive encrypted asset key and rental flag.
1052
Get user Key from secure memory.
1054
Decrypt asset key and rental flag
1056
Is asset rented ?
1058
No
Yes
Subscription expired ?
1062
No
Return asset key.
1060
Yes
Return indication of subscription expired.
1064
Done
1068

Figure 10c